

FAX

FROM: Laura L. Burrell (703-308-0005)  
TO: Jen Mayer, ICF  
DATE: 2/15/02  
RE: ACC petition to exempt wastestreams  
Pages: 35 (including cover)

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Jen:

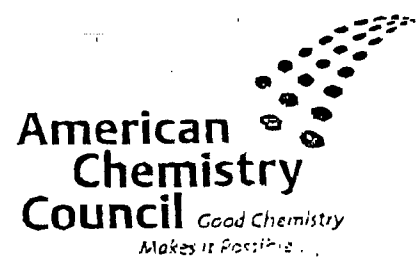
As we discussed, here is the letter/petition from ACC requesting the exemption for the wastestreams. The biological sludge data is on pages 3-4 of the July 25, 2000 letter. Give me a call if you have any questions.

Sincerely,

Laura L. Burrell, P.E.

10-19

July 26, 2000



Ms. Tracy Atagi,  
U.S. Environmental Protection Agency  
2800 Crystal Drive  
Arlington, VA 22202

Re: Docket Number F-99-WH2P-FFFFF; American Chemistry Council's Response to Public Comments and EPA Questions on Recommendations to Revise the RCRA Mixture and Derived-From Rules

Dear Ms. Atagi:

On November 19, 1999, EPA published a proposal relating to RCRA's "mixture and derived-from" rules. 64 Fed. Reg. 63382. In it, EPA proposed to promulgate the mixture and derived-from rules on a final basis, and also sought comment on five different proposals that the Chemical Manufacturers Association (now called the American Chemistry Council or "the Council") suggested for reducing the regulatory overbreadth of these two rules. We sincerely thank the Agency for including our suggested regulatory options in the notice of proposed rulemaking.

The Council as well as others in the regulated community were deeply disappointed in the Agency's failure to propose any meaningful reform of the mixture and derived-from rules in the November 1999 proposal. Other than the proposal regarding mixed wastes (actually a separate notice), EPA did little more than perpetuate the *status quo* regarding dilute mixtures and treatment residues. We question whether a final rule, based solely on the November 1999 proposal, would meet the expectations of Congress and the Courts regarding the overbreadth of the mixture and derived-from rules.

In addition to Congress and the Courts, EPA itself has recognized the overbreadth of the mixture and derived-from rules since their inception in 1980. As EPA has continually noted in its HWIR proposals throughout the 1990's, revising the mixture and derived-from rules can save the Nation more than \$75 million each year without compromising public health or the environment<sup>1</sup>. See 57 Fed. Reg. 21450 at 21500 - 21504 (May 20, 19992) and 60 Fed. Reg. 66343 at 66414 - 66416 (December 21, 1995). To meet public expectation, address the Agency's own recognition of overbreadth, as well as the merits of our recommendations, we hope after evaluating the comments you have received, EPA will find it appropriate to promulgate our recommendations as part of the final rule scheduled for promulgation in April 2001.

The Council suggested these five different alternatives last summer when it became clear that EPA's preferred path toward curing this overbreadth — concentration levels derived from a complex multi-media, multi-pathway, multi-receptor risk

<sup>1</sup> We believe actual savings from a workable HWIR program to vastly exceed that sum.

assessment (3MRA) model — would not be available and useful in the near term. Since then, we have learned that EPA is planning to re-propose the HWIR rule and a limited number of exit levels no earlier than late 2002 because of additional problems with the model.

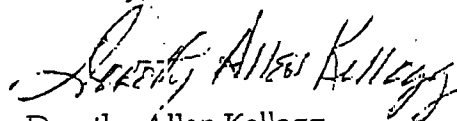
The Council recognizes the extensive work being done by the Agency to develop the 3MRA model. Through the years, the Council has offered technical assistance and has supported the Agency's repeated requests for more time from the court to resolve difficult technical issues so that the Agency's model is scientifically sound and technically correct. However, we believe that EPA should not wait an additional five, ten, or more years to cure this problem, no matter how impressive or innovative the proposed solution.

At your request, we have examined the public comments filed on our proposals and are advising the Agency of our views on those comments. Preliminarily, we note that only five entities submitted comments that could be considered negative about our proposals — three state agencies and two waste management companies which could suffer pecuniary loss if EPA adopted some of our suggestions. In contrast, over 30 commented favorably on one or more of our recommendations. In addition to our responses to the negative issues raised, we are attaching written responses to questions that you have asked us in a written document from January of this year.

We have patterned our suggestions after existing Agency RCRA policies, most notably the concept that the creation of treatment residue is a new point of generation, and existing RCRA exclusions relating to hazardous waste treatment in Clean Water Act facilities. Our suggestions to revise the derived-from rule, in particular, follow other similar exclusions: treatment followed by risk-based endpoints or contingent management.

We hope that these additional comments help the Agency understand our proposals better and convince EPA of their merit. If you wish to discuss these responses, please contact me at 703-741-5236 or [dorothy\\_kellogg@cmahq.com](mailto:dorothy_kellogg@cmahq.com).

Sincerely,



Dorothy Allen Kellogg  
American Chemistry Council  
Waste Issues Team

AMERICAN CHEMISTRY COUNCIL'S RESPONSE TO NEGATIVE COMMENTS AND EPA'S  
QUESTIONS

REGARDING ITS PROPOSALS TO REVISE THE MIXTURE AND DERIVED-FROM RULES.

PROPOSAL 1. SLUDGE AND WASTEWATER RESULTING FROM ADVANCED BIOLOGICAL  
TREATMENT

In this proposal, the American Chemistry Council recommends that EPA establish a new "point of generation" for residues (biosludges and treated wastewaters) derived from the aggressive biological treatment of listed hazardous wastewaters in CWA systems. Under the Council's proposal, wastewaters or biosludges derived from the aggressive biological treatment in treatment units whose discharge is regulated under the CWA<sup>1</sup> would be exempt from RCRA Subtitle C regulation, unless they exhibited a characteristic of hazardous waste. This is consistent with the approach EPA adopted in 1981 for wastewaters treated in CWA regulated units and other similar provisions where EPA has exempted materials either treated in, or derived-from treatment in, such systems. See 40 CFR 261.3(a)(2)(iv) regarding compatibility with and reliance on CWA and (c)(2)(ii) regarding exemption in specific circumstances of treatment residues that no longer exhibit a characteristic.

Our approach relies on the discharge limitations established under the CWA (effluent guidelines, water quality standards, and other state-imposed requirements such as biomonitoring) to ensure that treated wastewaters are protective of human health and the environment and RCRA's Subtitle D provisions to ensure that biosludges sent to non-hazardous landfills are protectively managed.

EPA's Subtitle D rules are specifically designed to protect the environment from sludge generated by industrial wastewater treatment, and to ensure management of hazardous waste from either conditionally exempt small quantity generators of hazardous waste or household hazardous waste. See 40 CFR 257.1(a) - (b); 257.2 definition of sludge and 40 CFR 258.1; 258.2 definition of sludge. For example, in addition to stipulating specific unit design and operating requirements, the regulations require landfills receiving conditionally exempt small quantity generator waste or municipal waste to monitor groundwater for an extensive list of constituents, a list considerably longer than the list of 261.24 TC constituents. See 257.21 - 28; 258.50 - 58; and 258 Appendix I and II. These are the same programs that other similar RCRA exemptions rely on to ensure that exempted wastes are managed in a way that protects human health and the environment. See 40 CFR 261.3(c)(2)(ii)(A) - (E).

The Council's proposal also relies on concepts previously endorsed by Congress and EPA. RCRA excludes point source discharges controlled by the CWA from regulation as a hazardous waste. EPA's policy on changes in treatability group status, e.g., from liquid to solid, results in a "new point of generation" for classifying hazardous waste for the purpose of determining what is appropriate treatment under the land disposal restrictions program.

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<sup>1</sup> This would include wastewater at facilities that have eliminated the discharge of wastewater such as through use of a Class I injection well.

See RCRA 1004(27), 40 CFR 261.4(a)(2), 64 FR 25408, 25411 (May 11, 1999) and 55 FR 22,661-62 (June 1, 1990)

Generally, comments on our suggested approach for wastewater treatment residues were favorable. Many commenters supported our approach for both wastewaters and sludges. Unfavorable comments were submitted by three state agencies and a commercial waste treatment association concerning potentially inadequate management of sludge. No negative comments were received about excluding the treated wastewaters from RCRA.

In general, the negative comments argued that such sludges should remain regulated as a hazardous waste via the derived-from rule. Commenters noted the potential for toxic constituents, mainly metals, to accumulate in the sludge and then leach into the environment when they are land disposed. Many of these metals, several commenters argue, would not be captured by the TCLP and the sludge could escape regulation as a hazardous waste even though the metals may be "toxic and bioaccumulative."<sup>2</sup> Other commenters argued that even if the sludge contained constituents below EPA's toxicity characteristic, EPA did not set the TC regulatory thresholds at levels determined to be fully protective.<sup>3</sup> Presumably these commenters believe that the sludges should be regulated as hazardous waste even if they contain metals below the TC concentrations. They point out that EPA is developing a multipathway risk assessment model to determine what levels are protective and is proposing to keep the MDF rules because of the potential toxicity of wastewater treatment sludges.<sup>4</sup> Finally, one commenter made the general observation that "the potential complex chemistries of residues associated with" this proposal preclude an exemption from the derived-from rule.<sup>5</sup> These comments, we believe, overstate the risk from wastewater treatment residues.

**A. EPA Does Not Need the Mixture and Derived-From Rules to Ensure Adequate Treatment and Management of ABT Residuals.**

In the preamble to the rule, EPA states that "without the mixture and derived-from rules, some generators would alter their wastes to the point it no longer meets the listing description without detoxifying, immobilizing, or otherwise actually treating the waste." The Agency continues to say, "without a 'derived-from' rule, hazardous waste generators could potentially evade regulation by minimally processing or managing a hazardous waste and claiming that the resulting residue is no longer the listed waste, despite the continued hazard of the residue." See 64 Fed. Reg. at 63,389.

It is incredulous to suggest that aggressive biological treatment in a federally regulated facility isn't actual treatment or is an evasion of regulation! We understand that there is a concern over the concentrations of inorganic chemicals in the sludge, 64 Fed. Reg. at 63,389

<sup>2</sup> Comments of California Department of Toxic Substances Control (hereafter, California), February 16, 2000 at 2.

<sup>3</sup> Comments State of Maine Bureau of Remediation & Waste Management (hereafter Maine), February 17, 2000 at 1-2.

<sup>4</sup> Maine at 2.

<sup>5</sup> Comments of New York Department of Environmental Conservation, Office of Air & Waste Management (hereafter, New York), February 15, 2000 at 2.

and that is why we have suggested that residues that exceed the Toxicity Characteristic remain regulated as hazardous waste.

**B. Exemption from Subtitle C Regulation Does Not Mean Exemption from All Regulation.**

If EPA exempts ABT sludges from regulation as a hazardous waste, they would nonetheless remain regulated as non-hazardous wastes that are subject to EPA rules under 40 CFR 257 and 258, state industrial non-hazardous waste laws and regulations, and appropriate air standards. The Part 257 rules establish performance, design, and operational criteria for disposing of sludges at non-municipal, non-hazardous waste landfills that prohibit contamination of groundwater beyond the unit boundary. See 40 CFR 257.3-4. These rules also require extensive monitoring and corrective action at non-municipal, non-hazardous landfills that receive conditionally exempt, small quantity generator hazardous wastes. See 40 CFR 257.22 - 28. Finally, EPA's rules on municipal solid waste landfills (that are also allowed to receive other non-hazardous waste) also control releases from these units to groundwater by establishing liner and design requirements. See 40 CFR 258.40.

Based on commenters' concerns about metals, we note that the levels of metals in household hazardous waste being managed in these Subtitle D landfills are much higher than the TC levels that would be prohibited from placement in such units under our proposal. For example, two studies of POTWs<sup>7</sup> show metals in municipal sludge - sludge for which the Part 258 standards were developed - significantly exceed TC levels:

Constituent	TC (mg/l)	266 App VII (mg/l)	40-POTW Study (mg/dry kg)	30-Sludge Study
Cadmium	1.0	1.00	11.2	41 mean and 20 median
Chromium	5.0	5.00	248	2132 mean and 1275 median
Lead	5.0	5.00	266	327 mean and 305 median
Mercury	0.2	.20	1.7	7.0 mean and 4.8 median
Nickel		70	70	259 mean and 195 median

Compare these numbers to treated sludge samples from two CMA member facilities, again, compared against both the TC and 266 Appendix VII<sup>7</sup>:

Constituent	TC (mg/l)	266 App VII (mg/l)	Facility A TCLP (mg/l)	Facility B TCLP (mg/l)
Antimony		1.0	n/a	n/a

<sup>6</sup>"Chemical Constituents Present in Municipal Sewage Sludge," Water Quality Management Library, Volume 4, Municipal Sewage Sludge Management, Processing, Utilization and Disposal, 1992, Edited by Lue-Hing, Cecil et al., Technomic Publishing Co., Inc.

<sup>7</sup>These concentrations were originally submitted to EPA March 4, 1993, as part of the Chemical Manufacturers Association in response to the Agency's January 19, 1993 Notice of Data Availability and Request for Comments on the Land Disposal Restrictions for Third-Third Scheduled Wastes; Response to Court Decision (RCRA Docket No. F93-TTCA-FI'FFF; 58 FR 4972). This data represents metals composition in wastewater treatment sludge from two facilities as examples of the low levels of TC and 266 Appendix VII constituents represented in biosludge generated by the organic chemical industry.

Arsenic	5.0	5.0	<0.03	<0.05
Barium	100	100	0.76	0.039
Beryllium		0.007	n/a	n/a
Cadmium	1.0	1.0	0.06	<0.005
Chromium	5.0	5.0	0.03	<0.005
Lead	5.0	5.0	<0.05	<0.05
Mercury	0.2	0.2	n/a	n/a
Nickel		70	0.13	n/a
Silver	5.0	5.0	n/a	<0.01
Thallium		7.0	n/a	n/a

n/a – not analyzed

Consequently, although sludges from aggressive biological treatment of listed wastewaters could contain metals such as lead, cadmium, chromium (below the TC), or others, *just like other non-hazardous wastes and sludges as well as wastes exempted under the current regulations.* See 40 CFR 261.3(c)(2)(ii)(A) – (E). EPA allows comparable wastes to be managed in Subtitle D units, and has promulgated appropriate rules for managing these wastes protectively.

In addition, exempted sludge could also be managed in combustion units in a safe and environmentally sound manner. The Part 257 rules also prohibit "open burning" which is defined as burning in the absence of adequate temperature for efficient combustion, sufficient residence time and mixing for complete combustion, and emission control. See 40 CFR 257.3-7(c). Not all facilities intend to manage their ABT sludge in landfills. Some expect to burn the biosludge either in hazardous waste units (regulated through the RCRA incinerator or BIF standards or the recently promulgated incinerator MACT standard) as they do now, or in non-hazardous thermal treatment units. EPA's Air Office will promulgate NSPS standards for Commercial and Industrial Solid Waste Incineration Units in November 2000 to address both incinerators and boilers burning non-hazardous waste. By April 30, 2001 when OSW is scheduled to finalize changes to the mixture and derived-from rule, appropriate standards will be promulgated to cover non-hazardous waste combustion alternatives.

### C. ABT Treatment is Equivalent To Treatment Levels Required By LDR Program.

Other negative comments on our proposal regarding wastewater treatment residues suggested that EPA apply the land disposal restriction treatment standards to these wastes before managing them in a Subtitle C facility.<sup>2</sup> This commenter expressed fear that "residues could continue to contain constituents which are either in the original listing description, or exhibit a characteristic." It appears that the commenter did not fully understand our proposal. Any biosludge that exhibited a characteristic would continue to be regulated as a characteristically hazardous waste and could not be land disposed unless it met the land disposal restrictions for that waste code.

While sludges that do not exhibit a characteristic may contain traces of the hazardous constituents for which the waste was listed, that is not a reason to continue regulating the sludge as a hazardous waste. The Council's proposal suggests that EPA only exclude

<sup>2</sup> California at 2.

residues derived from the aggressive biological treatment of industrial waste. ABT units are highly effective in reduction of organic constituents as demonstrated by the fact that biological treatment is the basis for the majority of LDR treatment standards for the organic constituents in multi-source leachate (F039)<sup>9</sup>. Such treatment would exceed the 90% treatment level that EPA promulgated for characteristically contaminated soil to be managed under RCRA Subtitle D under the recent HWIR-Media rule. Thus, the treatment that these wastes would receive is comparable or better than what EPA requires for other organic wastes under the corrective action LDR program.

**D. The Toxicity Characteristic Is An Adequate Screen for Determining Which Wastes Should Remain Regulated As Hazardous Wastes.**

Another commenter pointed out that many "organics of concern" are not covered by the TC.<sup>10</sup> That is one of the many reasons why the Council has suggested EPA limit this exemption only to wastewaters and sludges from aggressive biological treatment. This ensures that the organics in the influent – both those listed in the TC and others – have been destroyed, again to levels that are comparable to, or more stringent than, those levels EPA requires for characteristically hazardous waste media. In addition, the Council notes that EPA has granted exclusions for other treated wastes as long as the residue did not exceed the TC levels. See 40 CFR 266.112 regarding metals, and 40 CFR 261.3 (c)(2)(ii)(D) regarding organics. We again emphasize that treatment standards for F039 were largely based on biological treatment, and that biological treatment treats more than the organics listed in the TC. As a result, though biosludge under our recommendation could exit Subtitle C at the TC level, aggressive biological treatment will generally achieve much lower treatment levels.

In addition, we believe the TC concentrations are more than sufficiently protective for sludges managed in non-hazardous waste units. While EPA established the TC as a screen for what is truly hazardous, it is based on a model that assumes co-disposal in an *unlined* municipal solid waste landfill that allows waste to get to a receptor. As EPA knows, this scenario assumes that an unlawful action will occur since the Part 257 and 258 rules require any "sanitary landfill" (defined to include landfills receiving industrial solid waste sludges) to prevent contamination from the source getting to an off-site receptor. See 40 CFR 257.1(a)(1), 257.3-3, 257.3-4, 257.22 – 257.28, 258.1(h) and 258.40. So, not only does the TC not represent the most likely management scenario, but arguing that the TC is inadequate to protect human health and the environment misses the point: *no test of potential toxicity protects the public, proper management does* and we are proposing that management of these sludges comply with EPA's rules.

**E. EPA Should Not Wait To Complete Its Surface Impoundment Study.**

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<sup>9</sup> In a study that the American Chemistry Council commissioned in 1991 and updated in 1995 (attached), we found that either the BDAT for the vast majority of F039 constituents *was* biological treatment, or that many other F039 constituents are *amenable to biological treatment*. Thus, under our recommendation most F039 constituents would be treated consistent with the LDR treatment standards.

<sup>10</sup> Maine at 2.



Finally, one commenter noted that it is inappropriate to exempt waste streams until after EPA completes its surface impoundment study<sup>11</sup>. The Council does not believe that there is any support for that position. First, the comment seems to miss the point of our suggestion. We have asked EPA to exclude residues from — not the influent to — the aggressive biological treatment of wastewaters irrespective of the units they are managed in. Hazardous influent to these units would still have to be managed in Subtitle C units or exempted wastewater treatment systems. Where these wastewaters are treated is, in many respects, irrelevant to EPA's consideration of our proposal.

Second, even if these untreated wastewaters were managed in surface impoundments, they would have to be managed in *hazardous waste* surface impoundments and not the surface impoundments which are the subject of the study. Finally, many more hazardous wastewaters are treated in tanks than in surface impoundments. Thus, waiting for the results of the surface impoundment study is largely irrelevant and only serves to delay needed regulatory relief for no good reason.

#### F. Answers To EPA's Questions Concerning Wastewater Treatment Residues

*Wastewater-1. How would ABT be defined for the purpose of this exemption? Could the definition in 40 C.F.R. § 261.31(b)(2)(i) (which currently only applies to F037 and F038) apply to other listed wastes?*

The American Chemistry Council recommends defining "aggressive biological treatment" consistent with the concept RCRA § 3005(j)(3) ("significant degradation of toxic pollutants and hazardous constituents contained in the untreated waste stream") and the exemption previously promulgated for F037 and F038 listed wastes. For the purpose of our suggestion, we would suggest listing the four types of treatment listed in 40 CFR 261.31(b)(2)(i) with an allowance for an alternative technology that will achieve a similar level of treatment. The expansion of the description beyond that in 261.31(b)(2)(i) is to recognize that other technologies may achieve equivalent treatment. The Council feels strongly that EPA should avoid "freezing" technology whenever possible.

*Wastewater-2. What is the best way to measure the effectiveness of an ABT system (e.g., % BOD removal)? At what effectiveness are significant amounts of organics prevented from going into land-based units? To what extent are constituents (i.e., organics) being destroyed through such treatment as opposed to being shifted from one media to another (more specifically, adsorbed to solids). Alternatively, how can the Agency be assured that significant destruction of constituents of concern occurs and such constituents do not go off to land based management?*

BOD removal is a common criterion for measuring effectiveness of treatment. However, we recommend EPA evaluate effectiveness by specifying known treatments that destroy organics and by what emerges from the system: the

<sup>11</sup> Maine at 2

wastewater fraction would have to meet the conditions of the facility's discharge permit and the sludge would have to display no hazardous characteristics.

Several years ago CMA commissioned a study of biotreatability of F039 organic constituents. That study showed that not only did EPA base most of its LDR treatment standards for F039 on biological treatment, but also nineteen or so organic constituents that were not based on biological treatment are amenable to biological treatment.

Sludges containing metals and those few organics which adsorb to the biosludge below TC levels, would be sent to facilities that comply with 40 CFR 257 or 258 or to facilities regulated under appropriate MACT standards to burn such materials. MACT standards for commercial and industrial boilers and incinerators burning solid (non-hazardous) waste are scheduled to be promulgated in November 2000.

***Wastewater-3. What data are available to characterize the chemicals found in ABT sludge and wastewater? Do most ABT sludges meet UTS, or is further treatment typically needed?***

The American Chemistry Council does not know of any national study characterizing the constituents found in ABT sludge. However, individual facilities do test these sludges for a variety of reasons, such as for LDR compliance, to support delistings, or to qualify the sludge for the waste disposal vendors. In addition, various companies have provided EPA information on their sludge constituent levels in past HWIR advocacy efforts. Our member companies involved in the advocacy at this time assure us their sludges meet the UTS or that, for the few constituents which fail, an incentive would be provided for waste minimization. This should be considered evidence that treatment residues exiting the Subtitle C system under our recommendations would generally contain hazardous constituents below the TC levels.

***Wastewater-4. Wastewaters in treatment systems that discharge under NPDES or CWA are already exempt. What would be the benefit of the additional exemption for these wastewaters?***

Because the two RCRA exemptions relating to wastewaters only apply to (1) wastewaters treated in tanks or (2) the point source discharge, situations arise in which hazardous waste requirements are applied to wastewaters that are, for example, either treated or stored in land-based units *after* treatment but before discharge. Specific situations described in CMA's February comments included: (1) facilities retaining treated wastewaters for intermittent discharging to streams with highly variable flow; (2) facilities that must increase oxygen content prior to discharge; (3) retention of wastewater for flood management; and (4) spills of ABT treated wastewater.

## PROPOSAL 2 -- COMBUSTION RESIDUES

Generally, most commenters supported the Council's suggestion that EPA exclude combustion residues resulting from the thermal treatment of listed hazardous wastes in permitted or interim status hazardous waste combustors. Negative comments on this suggestion came only from three of the four parties who unfavorably commented on our wastewater residue recommendation<sup>12</sup>. In fact, one of the states that commented negatively on the Council's suggestion to exclude ABT residues supported our suggestion for combustion residues with some modifications.<sup>13</sup> The negative comments about our recommendations for combustion residues largely echoed the same concerns as expressed for excluding ABT residues.<sup>14</sup> However, some commenters expressed additional concerns specifically related to combustion ash. For example, one commenter noted that while some organic compounds are effectively destroyed by the combustion process, other by-products, such as dioxins can be created and that combustion residues may contain metals at higher concentrations than in the original wastestream.<sup>15</sup> These residues, the commenter notes, may therefore have toxic properties that could cause environmental degradation.<sup>16</sup> This commenter goes on to note that the TC fails to provide adequate protection of human health and the environment for these wastes for several reasons: (1) Not all metals of concern are covered by the TC; (2) the TC measures potential risk via the groundwater pathway and it is not clear that the groundwater pathway drives the risk for these wastes; and (3) the TC is not set at levels determined to be fully protective, but instead were set at levels that were "clearly hazardous."

Another commenter raised similar concerns by noting that thermal destruction of organic constituents also results in concentrating metals in the combustion residue, and claimed that if combustion residues were to escape RCRA before full treatment of metal constituents, EPA would not be ensuring that RCRA controls the waste until it "ceases to pose a hazard to the public" as required by law.<sup>17</sup> This commenter asks how the LDR provisions would apply to these residues and suggests that even if they were fully subject to treatment standards, they should be managed and disposed according to Subtitle C standards.<sup>18</sup>

Finally, several commenters supported EPA creating a new LDR code for combustion ash.<sup>19</sup>

### A. The Council's Proposal Relies on Best Demonstrated Treatment Technology.

Several commenters tried to make the case that residues from thermal treatment may contain toxic constituents not covered by the TC and consequently should remain regulated under Subtitle C. In this regard, the Council notes that thermal treatment is often the required LDR

<sup>12</sup> California, Maine, and Environmental Technology Council

<sup>13</sup> New York at 2.

<sup>14</sup> California at 2.

<sup>15</sup> Maine at 1.

<sup>16</sup> Id.

<sup>17</sup> Comments of the Environmental Technology Council (hereafter ETC), February 17, 2000 at 2.

<sup>18</sup> Id.

<sup>19</sup> Maine and ETC

treatment (either as a prescribed technology standard or most feasible means of achieving the numerical limit) for the wastes generating the residues that would be eligible for this recommendation. Thus, the hazardous waste is being treated using the best available demonstrated control technology and the only question is whether these residues can be protectively managed in Subtitle D units. We think so since, to exit Subtitle C, they could not exhibit a hazardous characteristic and would contain concentrations consistent with or lower than other industrial or municipal solid waste regulated in such units. In addition, EPA's rules governing these units adequately protect human health and the environment (see discussion under Proposal 1. above).

**B. EPA is Not Obligated to Require That Combustion Residues be Managed in Subtitle C Units.**

Referring to the decision remanding EPA's mixture and derived-from rules, one party commented that RCRA requires controls to the point where the waste ceases to be a hazard to the public.<sup>30</sup> *Shell Oil Co. v. EPA*, 959 F.2d 741, 754 (D.C. Cir. 1991). This is an interesting comment that demonstrates the dangers of examining this issue through platitudes. The commenter seems to assume that RCRA either requires elimination of *all* threats posed by the waste or its management in a subtitle C unit.

While EPA has jurisdiction over the management of *hazardous* waste "from cradle to grave," RCRA was never intended to regulate low-risk waste that is or can be properly managed outside of Subtitle C's stringent regulatory scheme. This is apparent from the definition of hazardous waste. See 42 U.S.C 6903(5). It divides solid wastes into two hazardous categories. In the first category are those materials that Congress wanted to regulate because they present a significant risk of serious injury to humans. See 42 U.S.C 6903(5)(a?). For these wastes, Congress decided that it wanted EPA regulation *irrespective* of prevailing management practices. In the second category, however, Congress required EPA to only exercise its authority if the waste posed a significant hazard if it was *improperly managed*. See 42 U.S.C 6903(5)(b?). Therefore, Congress clearly believed some harmful materials could be protectively managed outside of RCRA's Subtitle C requirements.

The D.C. Circuit Court of Appeals has recognized this as well. For example, in the military munitions case, the Court upheld EPA regulations that allowed *untreated* hazardous waste with high metal content to be managed outside of Subtitle C. *Military Toxics Project v. EPA*, 146 F.3d 948 (D.C. Cir. 1998). In addition, the Court has taken a more "holistic" view of RCRA's 3004(m) requirement to "minimize threats" than the commenter suggests. In the case of *LEAN v. EPA*, 172 F.3d 65 (D.C. Cir. 1999), the court equated RCRA's 3004(m) requirements to minimize threats to the statute's overall goal of protecting human health and the environment under RCRA. *Id.* at 69.

Finally, there is no reason to believe that the rationale of the 3<sup>rd</sup>-3<sup>rd</sup> case applies here. *Chemical Waste Management v. EPA*, 976 F.2d 2 (D.C. Cir. 1992). In that case, the court decided that the LDR treatment standard was not achieved for characteristic wastes that were subject to the standard of DEACT, without a further showing by EPA that these wastes achieved the statutory goals for LDR treatment. In this circumstance, combustion residues have

<sup>30</sup> ETC at 2

undergone BDAT treatment — not merely deactivation by any means. Thus, the material is being subjected to stringent treatment, and, as the court recognizes in the LEAN case, the Agency has discretion where to require its placement consistent with the statutory mandate to protect human health and the environment.

The reason EPA continues to subject decharacterized hazardous wastes to the LDR treatment standards after the court's decision is that the treatment standard for these wastes is "DEACT." DEACT allows a facility to perform just enough treatment to remove the characteristic. In some cases, this treatment can arise as part of the normal aggregation of combining hazardous wastewaters for centralized treatment. Thus, the treatment standard of DEACT does not, by itself, assure that a high degree of treatment is occurring. Consequently, EPA requires decharacterized hazardous waste to achieve compliance with additional treatment standards for underlying hazardous constituents.

Combustion residues are different. They result from best-demonstrated treatment. They are not the residues of minimal or "good enough" treatment technology that merely removes a hazardous characteristic. Thus, there is no need to require them to comply with additional treatment standards.

One commenter raises a question around constituents actually created by the combustion process. Certainly any such compounds listed on the TC would be subject to compliance with those levels. We note that 11 of the volatile and semi-volatile PICs (products of incomplete combustion) identified at 40 CFR 266 Appendix VIII do, in fact, have TC levels. As with advanced biological treatment, combustion treats more than the organics included in the TC. The agency has raised questions about the creation of dioxins and furans as part of the June 19, 2000, LDR notice (65 FR 37932, 37953). We would expect to address the creation of such comments in the context of those comments (due September 18).

#### C. The Land Disposal Restrictions Treatment Standards Would No Longer Apply to Combustion Residues.

Several commenters appeared confused over the question of whether the LDR treatment standards apply to these wastes. Under our proposal, combustion residues would *not* be subject to the Land Disposal Restrictions treatment standards because such residue would not be a hazardous waste. Under EPA's "new point of generation" concept, wastes are reclassified at a new point of generation. Since these wastes are not hazardous at the new point of generation, they would not be prohibited wastes under the land disposal restrictions program.

EPA should consider our proposal protective of human health and the environment. As we have pointed out in our response to negative comments relating to our ABT residue proposal, non-hazardous solid wastes must be disposed in facilities meeting the requirements of 40 CFR 257 or 258. These provisions adequately control releases from such facilities and appropriately address the metal and trace organic contaminants (that are not subject to volatilization) found in non-TC combustion residues.

#### D. The Council Does Not Support Creation of A New LDR Code for Combustion Ash.

Several commenters suggested that EPA create a new waste code for combustion ash similar to what EPA created for landfill leachate. The Council does not support that suggestion as an alternative to our recommendation because we do not believe it is necessary or appropriate to subject residues from the best available treatment to further regulation. We note that this suggestion for a new waste code is quite different from EPA's policy for multisource leachate, since such a new code would apply to materials that have already undergone BDAT. In contrast, the F039 code applies to a waste that has not yet been treated.

We also note that EPA has raised the question of a new waste code for combustion ash as part of the recently published Land Disposal Restriction Reinvention notice 65 Fed. Reg. 37932, 37952 (June 19, 2000). The Council will address this issue through comments on that notice. Nevertheless, based on a cursory analysis of the description in the June notice, we are not convinced that such an approach would provide sufficient relief for the current over-regulation of combustion residues.

#### E. Answers to EPA's Questions Concerning Combustion Residues

*Combustion-1. What types of combustion units are to be considered under this option?*

Incinerators or BIFs (boilers and industrial furnaces) permitted under appropriate federal or state regulation to burn hazardous waste.

*Combustion-2. Are there data available supporting the statement that "virtually all of the organics in the listed waste" are destroyed by combustion?*

To receive a permit to burn hazardous waste, an incinerator or BIF must demonstrate a destruction-removal efficiency (DRE) of 99.99% of organics identified based on the constituents in the specific wastestream most difficult to burn (for dioxin-containing wastes the unit would need to demonstrate a 99.9999% DRE). Destruction-removal efficiency is documented in the units trial burn and operating record. Based on these and other hazardous waste combustion regulations, the Agency should have confidence that the organics are being destroyed.

*Combustion-3. How would the risks from products of incomplete combustion (PICs), including dioxins and furans, be addressed by a combustion residue exemption?*

To the extent PICs themselves have TC concentrations, the combustion residue could not exit Subtitle C if those limits were exceeded. We note that 11 of the volatile and semi-volatile PICs (products of incomplete combustion) identified at 40 CFR 266 Appendix VIII do, in fact, have TC levels. We would also point out that neither dioxins nor furans are identified as Hazardous Constituents under 40 CFR 261 Appendix VIII (though specific dioxins and furans are included as underlying hazardous constituents). The agency has raised specific questions about the creation of dioxins and furans as part of the June 19, 2000, LDR notice (65 FR 37932, 37953), and we would expect to address the creation of such comments in the context of those comments (due September 18).

*Combustion-4. For TC metals in ash, under what circumstances do you think it is appropriate to rely on the toxicity characteristic in exempting such waste? Specific restrictions related to storage, transport or disposal? How would the risks from non-TC metals (e.g., thallium) be addressed?*

We think that it is appropriate to rely on the toxicity characteristic in the situation we have suggested. Relying on the TC is consistent with the Agency's policy on Bevill ash in 40 CFR 266.112. In our February 2000 comments we recommended adopting the 40 CFR 266 Appendix VII list of metals for combustion ash, which would add antimony, beryllium, nickel and thallium to the existing list of TC metals. Since the treatment residue, if it did not exhibit a hazardous characteristic, would not be a hazardous waste, requirements that normally attach to industrial non-hazardous waste would attach here.

*Combustion-5. Is there data available supporting the statement that scrubber waters from hazardous waste combustors are managed in systems subject to NPDES or CWA? Is this also true of scrubber waters from non-hazardous waste combustors?*

Wastewaters (scrubber, quench, other) would ultimately be managed in a system, the discharge of which is regulated under the CWA (or systems that have eliminated discharge). Point of generation for this new determination would be (1) at the point of exit from the scrubber or other discrete unit or (2) at a point of common aggregation for wastewaters from the combustion unit for the purpose of centralized treatment.

*Combustion-6. If, instead of a blanket exemption, EPA were to pursue a concentration-based exemption for combustion residues, would the chemicals found in Appendix VII and VIII of 40 CFR Part 266 be an appropriate list to focus on? If not, which chemicals should be the focus?*

We commented in February 2000 that the metals list in 266 Appendix VII would be appropriate against which to evaluate metals. We are less comfortable with the Appendix VII list for organics (which has been administratively stayed and which subsequently defaults to F039) since they were developed to account for constituent arising from the combustion of coal or other fossil fuels as well as the combustion of hazardous wastes.

*Combustion-7. If EPA were to pursue a contingent-management exemption for combustion residues, which management scenario would be industry-recommended management practice? Land application? Non-hazardous waste landfilling? Stabilization followed by non-hazardous waste landfilling? Other?*

We point out that our proposal is a contingent management proposal. Scrubber water would be regulated under the CWA and ash would be landfilled and regulated under 40 CFR 257 or 258.

*Combustion-8. Do most combustion residues meet Universal Treatment Standards (UTS), or is further treatment typically needed?*

While we have not conducted a study, it is our perception that many combustion residues at non-commercial sites do meet UTS. Many of our members engaged in advocacy on this issue have evaluated their ash and it does meet UTS. This should be considered evidence that treatment residues exiting the Subtitle C system under our recommendations would generally contain hazardous constituents significantly below the TC levels.

*Combustion-9. How do you envision an exemption for combustion waste residues affecting Bevill waste determinations under 40 CFR 266.112 and the August 20, 1999 proposed regulation of Cement Kiln Dust (CKD)?*

We don't envision it affecting either the Bevill waste determination or the CKD proposal. All three of these provisions should be evaluated on their own merits and do not, necessarily have to affect one another — just as the exemption for Bevill wastes has not lead to a determination that all combustion residues be exempted. We believe that EPA's exemption for Bevill wastes is a strong precedent for our suggestion, and we do not believe that promulgating our exemption obviates the need for either the Bevill exemption or the CKD proposal.



**PROPOSAL 3. LEACHATE FROM LANDFILLS AND LAND TREATMENT UNITS**

Negative comments submitted on the Council's proposal to establish a new point of generation for leachate derived from landfills or land treatment units managing listed hazardous wastes were similar to the negative comments on other Council proposals designed to address the derived-from rule. The Council's response, therefore, will rely on the same points noted above responding to the comments on establishing a new point of generation for biosludges and combustion residues, except that we will focus on this specific factual situation: leachate that is managed in wastewater treatment systems whose discharge is regulated under the Clean Water Act.

**A. The American Chemistry Council's Proposal Would Exempt Only A Narrow Subset of Leachate.**

The comments submitted and questions asked by EPA demonstrate that we need to better explain the usefulness of this suggestion. Two commenters, for example, noted that this waste — which is coded F039 — is already exempt from the land disposal restrictions treatment standard if it is managed in a tank or container.<sup>21</sup> They further note that the treated waste is also exempt if it is subject to regulation under the NPDES permit program and question the purpose of our suggestion.<sup>22</sup> EPA also asked us questions that indicated their puzzlement over the scope and need for the exemption.

The Council is making this suggestion to address the situation where leachate is collected from a landfill or land-based treatment unit and is then managed in another land based treatment unit, such as a surface impoundment. Management of leachate in this manner is not currently exempted from regulation. This is a small subset of the leachate collected.

If a facility has a certain configuration, F039 leachate can be discharged to a POTW via the domestic sewage exemption or to navigable waters by the industrial point source exclusion and may be treated in an exempt wastewater treatment system (assuming the facility is able and willing to manage a hazardous sludge). See 40 CFR 261.4(a)(1) and 261.4(a)(2). Some leachates meet a facility's discharge limits and can be discharged directly to the receiving water body without treatment. However, in the absence of such a configuration making any of the options above feasible, the facility has two choices — manage its leachate in the on-site wastewater treatment system and generate a hazardous wastewater sludge that itself must be managed as a hazardous waste or send the leachate off-site. Thus, this exclusion could be useful to a specific set of facilities, some of which are Council members. Due to the expense of managing the hazardous sludge, many facilities elect to send the leachate off-site to a commercial hazardous wastewater treatment system, commercial hazardous injection well, or commercial hazardous incinerator.

EPA has pointed out that, based on the 1995 BRS, 99% of F039 is wastewater and incineration is reported as management for only 5% of those wastewater streams; incineration is reported as the choice of management for 40% of the non-wastewater streams (12% of non-wastewater

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<sup>21</sup> California at 2; ETC at 2

<sup>22</sup> California at 2; ETC at 2

tons). This alone demonstrates that most F039 is not going to incineration. Of the three major off-site options – wastewater treatment, deepwell injection, and incineration – incineration is generally the most expensive, but may still be selected based on the availability and proximity of the other options.

For all these reasons, we believe our recommendation will not affect a large volume of F039 leachate. However, for facilities currently having to send the leachate offsite, it will provide significant regulatory relief. In addition to straight cost saving by the generating facility, the environment will benefit by eliminating the emissions associated with unnecessary off-site transportation of the leachate.

**B. Exemption from Subtitle C Regulation Does Not Mean Exemption from All Regulation.**

As we noted in response to negative comments about exempting biosludge and combustion residues, if EPA exempts these leachates from regulation as a hazardous waste, sludges from their treatment would remain regulated as non-hazardous wastes subject to EPA rules under 40 CFR 257 and 258. These rules establish performance, design, and operational criteria for land-based solid waste management units that prohibit contamination of groundwater beyond the unit boundary. See 40 CFR 257.3-4. Thus, the major pathway of concern for these wastes – the ground water pathway – would be controlled. The treated liquid fraction of the leachate would be discharged consistent with the Clean Water Act.

In addition, the Toxicity Characteristic, which the Council relies on to identify leachate that should remain a hazardous waste, modeled this management scenario and was developed to define the levels at which potentially toxic constituents should be classified as a hazardous waste based on the groundwater pathway. Thus, for the principal pathway of concern – groundwater – the TC is an appropriate trigger for defining hazardous wastes. And, since the TC model for surface impoundments was based on *untreated* wastes, i.e., the levels were based on the assumption that wastes at or above the characteristic level would not be treated. Thus, the potential releases from surface impoundments managing these wastes excluded under this recommendation would be much lower in concentration than the wastes modeled for TC.

**C. Leachate Would Be Treated In Wastewater Treatment Systems Subject to Regulation Under the Clean Water Act.**

One of the negative comments merely questioned whether leachates would be exempt from the LDR treatment standards and summarily objected to it, if they were<sup>23</sup>. Another noted that EPA already had promulgated a multi-source listing code – F039 – and tailored its LDR treatment standards for it.<sup>24</sup>

In response, the Council points out that leachates would be treated and then lawfully discharged under the protective provisions of the Clean Water Act. The resulting sludge would be managed in a Subtitle D landfill, a combustion device in compliance with

<sup>23</sup> California at 2.

<sup>24</sup> ETC at 2.

appropriate MACT or NSPS standards or in accordance with the sludge standards promulgated under the Clean Water Act. It is important to point out that for "captive" landfills generating F039, EPA's Office of Water concluded as part of the recent final effluent guideline for landfills<sup>25</sup> that such landfills generate a [leachate] pollutant profile similar to other wastestreams generated at the facility. Thus, these leachates will receive adequate treatment in the facility's wastewater treatment system and will not present threats to human health and the environment.

**D. The Toxicity Characteristic Is An Adequate Screen for Determining Which Wastes Should Remain Regulated As Hazardous Wastes.**

Another commenter pointed out that many "organics of concern" are not covered by the TC.<sup>26</sup> That is irrelevant, for the reasons discussed above. The leachate being managed under our proposal will undergo treatment for the hazardous constituents that are of concern from that landfill or land-based treatment unit. These leachates will be treated according to the requirements of the CWA which establishes treatment limits by industry segment or by facility type. Thus, any leachate from a "captive landfill" that is placed in a wastewater treatment system will have to meet appropriate limits for that industry<sup>27</sup>, (e.g. sector-specific effluent guidelines, water quality standards, or a permit writer's "best professional judgement"). For non-captive landfills, leachate would be managed in wastewater treatment systems subject to the recently promulgated effluent limitation guidelines for landfills. See 40 CFR 136 and 445 65 FR 3008 (January 19, 2000).

Another commenter raised concerns about risks to human health and the environment from the air pathway.<sup>28</sup> The Council believes that concerns about this pathway are overstated. Under current regulations, and as discussed above, F039 multi-source leachate is generally treated in wastewater treatment systems. We do not see that our recommendation would increase the presence of volatile constituents. In addition, emissions of volatile chemicals are or will be shortly, addressed by standards promulgated under the Clean Air Act (see Headworks discussion below).

**E. EPA Should Not Wait To Complete Its Surface Impoundment Study.**

Finally, one commenter noted that it is inappropriate to exempt waste streams until after EPA completes its surface impoundment study. The Council does not believe that there is any support for that position.

It was appropriate for EPA to wait for the final conclusions of the Office of Water concerning regulation of landfill leachate, including the evaluation of whether to include captive

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<sup>25</sup> Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Landfills Point Source Category (65 FR 3008, January 19, 2000)

<sup>26</sup> Maine at 2.

<sup>27</sup> Analysis by EPA's water office concluded that wastes generated in an industrial or commercial operation directly associated with the landfill or similar wastes would generate a leachate with a similar pollutant profile to the other wastewater streams produced at the industrial operation. (65 FR 3012, January 19, 2000)

<sup>28</sup> Maine at 2.

landfills in the rulemaking. Now the studies underlying that final rule are complete and the Agency has concluded that additional regulation of leachate from captive landfills does not require further regulation since it can be appropriately managed in a facility's wastewater treatment system governed by the Clean Water Act. Results from the Surface Impoundment Study will be reviewed to determine if additional measures are necessary for wastes subject to management under RCRA, not wastewaters managed under the Clean Water Act.

#### F. Answers to EPA's Questions Concerning Land Treatment Units

##### *Leachate-1. What does CMA mean by leachate from land treatment units?*

The term "land treatment unit" encompasses landfills and land treatment facilities as defined at 40 CFR 260. Both types of units, when constructed with a bottom liner, generate a leachate which could be subject to this recommendation. The definition would include both captive and non-captive landfills as defined in the recent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Landfills Point Source Category (65 FR 3008, January 19, 2000, henceforth the January 2000 effluent guideline final rule).

With regard to leachate from landfills, we concur with the comments made by Waste Management on February 19 concerning the integration of RCRA and the Clean Water Act.<sup>29</sup> In the preamble to the January 2000 effluent guideline final rule EPA concluded that leachate from "captive landfills" (described in the preamble):

... which only received wastes generated in an industrial or commercial operation directly associated with the landfill or similar wastes would generate a leachate with a similar pollutant profile to the other wastewater streams produced at the industrial operation.

The Agency went on to conclude that the effluent guidelines appropriate to the industry generating the materials going into the landfill were also appropriate for treating both the wastewater and the leachate generated by such operations. Due to this conclusion, such "captive landfills" were excluded from the final rule. The rule itself addressed leachate from non-captive landfills.

As a result, we believe that F039 leachate can be protectively managed in a wastewater treatment system provided (1) leachate from "captive landfills" is managed in accordance with the effluent guidelines appropriate to the industrial category generating the waste and (2) leachate from non-captive solid waste landfills is managed in accordance with the new effluent guidelines for landfills.

*Leachate-2. Why aren't many of these leachate wastes already exempt either because of discharge to POTW's via the sewer system or to navigable waters (261.4(a)(1) (domestic sewage exclusion) and 261.4(a)(2) (industrial point source exclusion))? Indirect discharge of leachate through the sewer to a non-POTW and transfer of leachate to a POTW by truck,*

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<sup>29</sup> 65 FR 3012, January 19, 2000

*rail, or dedicated pipe are both practices under which the leachate would not be excluded. Are these the conditions of management which underlie this option?*

We agree that all the options listed above are available and probably used by different leachate generators. Selection of an alternative depends on the situation at the specific location – whether direct access is available to a POTW, whether the industrial wastewater treatment system can/will accept hazardous waste of F039, whether the leachate can logistically or economically be transferred by truck, dedicated pipe, or rail. Our recommendation, however, addresses those situations where leachate is not or cannot reasonably be discharged to a POTW or a RCRA-exempt NPDES system that can or will accept the derived-from hazardous waste.

*Leachate-3. For what wastes or chemicals do you think we could support a conclusion that management of the leachate in impoundments does not pose groundwater risks?*

Again, referencing the January 2000 effluent guideline final rule, the leachate would be managed in a wastewater treatment system associated with the industrial or commercial operation that generated the waste going into the unit generating the leachate. In this way, the leachate would have a similar pollutant profile to the wastewater already generated in and managed by the operation. In this case, it would be limited to chemicals already present in the wastewater influent and which were considered in permitting the facility's discharge limits. If the leachate contained chemicals not evaluated in permitting the NPDES discharge, the NPDES permit might need to be revised.

If a wastewater treatment system which includes a surface impoundment were already managing wastewaters with a profile similar to the composition of the leachate, the addition of the leachate would make no difference in the system's effects on groundwater. Our recommendation would be limited to leachate from "captive" landfills (those from similar industrial categories) or non-captive landfills only if the wastewater system is in compliance with the new landfill effluent guideline standards.

*Leachate-4. In the paper, "New Point of Generation for Leachate Derived from Landfills or Land Treatment Units Managing Hazardous Waste," CMA states the following: "The derived-from leachates are normally subjected to costly and unnecessary incineration or other treatment at off-site facilities." In the 1995 BRS, 99% of waste stream tons with the F039 code attached are wastewaters. Incineration is reported as the choice of management of 5% of wastewater streams (incineration does not appear appreciable relative to wastewater tons); incineration is reported as the choice of management for 40% of non-wastewater streams (12% of non-wastewater tons). Is there a particular subset of leachate waste (origin and waste form) that CMA believes is over-regulated and subject to costly and unnecessary incineration or other treatment at off-site facilities?*

We do not dispute that facilities will exhaust other options before committing to transporting leachate off-site for incineration or other treatment. We are familiar, however, with facilities that do have that situation. At least one Council member facility is transporting such leachate offsite by truck to a commercial hazardous

wastewater treatment system several states away. Another member sends the leachate offsite to a commercial hazardous injection well. Both of these streams could easily be managed in the on-site non-hazardous wastewater treatment system. Yet another member must manage the leachate as hazardous even though, as generated, it would meet the facility's wastewater discharge permit limits and could be discharged directly to the receiving stream.

Movement of leachate off-site for treatment is more costly than on site management in a wastewater treatment system designed and operated to treat the constituents present in the leachate. Trucking to an off-site POTW, deep well, incinerator, or other treatment system all result in an increased financial and environmental cost that is unnecessary for managing the leachate in an environmentally protective manner.

*Leachate-5. Does CMA have information on the relative amount of off-site versus on-site treatment of leachate?*

We do not have national data on the relative volumes of leachate managed on- or off-site. However, based on anecdotal reports from our members, we do not believe our recommendation will involve large volumes of leachate. As discussed earlier, facilities have several options for managing P039 leachate - including the domestic sewage exemption to a POTW, or as part of a discharge under the Clean Water Act. However, for those facilities that cannot avail themselves of these exemptions, they have no choice but to manage the leachate as a listed hazardous waste. For those facilities this recommendation represents significant regulatory relief without compromising protection of human health and the environment. As an example, one chemical plant is incinerating approximately 10,000 gallons of landfill leachate a week at a cost of \$12,400 per week or over half a million dollars annually. In another example, one member company spends \$200,000 per year to ship leachate off-site to another state for treatment that could be appropriately treated on-site. Finally, another is facing a capital investment of approximately \$350,000 to construct a tank-based treatment system to manage leachate that will become hazardous as a result of the recent petroleum listing. Since it is currently non-hazardous, the leachate is managed in the facility's wastewater treatment system, which includes a surface impoundment.

#### 4. HEADWORKS EXEMPTION

One of the American Chemistry Council's suggestions to ameliorate the effects of the mixture rule is to update an earlier exemption that EPA promulgated in 1980. This exemption, commonly known as the "headworks exemption" was promulgated at 40 CFR 261.3(a)(2)(iv)(A)&(B). As we noted in our earlier submission, EPA promulgated this exemption because the "mixture rule" resulted in wastewaters containing small quantities of certain spent solvents on the "F" list to be considered listed hazardous wastes. To avoid this result, EPA excluded wastewaters containing low concentrations of these F-listed solvents (either 1 ppm or 25 ppm depending on the solvent characteristics) based on a calculated flow of these solvents through the headworks of industrial wastewater treatment systems. EPA's exemption recognizes that such wastewaters containing F-listed solvents can be adequately managed in a facility's wastewater treatment system and do not pose a substantial threat to human health or the environment. *See* 46 Fed. Reg. 56,582, 56,584 (November 17, 1981).

The regulatory language adopted in 1981, however, does not allow generators to demonstrate compliance with these provisions by monitoring the actual concentration of spent solvents in untreated wastewater. Thus, facilities cannot rely on sampling and analysis to avail themselves of the exemption; they can only employ the exemption by relying on calculations of solvent consumption and flow rate into the headworks.

In 1986, EPA amended its listing regulations to add to the F-listed spent solvent listings benzene, 2-ethoxyethanol, 2-nitropropane and 1,1,2-trichloroethane. *See* 51 Fed. Reg. 6,537 (February 25, 1986). However, the Agency failed to make corresponding changes to the headworks exemption in order to exclude wastewaters containing low concentrations of these chemicals. Consequently, the Council suggested that EPA update the exemption to include the F-listed spent solvents added in 1986 and to change the basis of the exemption to allow for direct measurement of the listed spent solvents.

Comments on this proposal were generally favorable. The only concerns raised were potential volatilization and a questioning of potential environmental impact. These issues will be addressed in order.

##### A. Concerns About Volatilization

EPA has and is addressing controls for volatile air emissions through both the RCRA and Air program. In the 19 years since the Headworks exemption was originally issued, EPA has issued a number of regulations addressing air emissions of organics, including the F-listed solvents. Because EPA has addressed these potential air emissions by regulations that focus specifically on those emissions, there is less environmental need for the headworks exemption to have to account for them as well. This is especially true since the purpose of the headworks exemption "was to keep large volumes of treatment sludges from falling within the scope of the listings(s) when, in fact the wastewater treatment system could handle the amount of solvents contained in the wastestream as it entered the headworks of the treatment system."<sup>30</sup>

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<sup>30</sup> See June 10, 1991 letter from Don Clay, EPA to Jacqueline E. Schafer, Department of the Navy (faxback 11614)

The following regulations issued under both RCRA and the Clean Air Act address the volatilization of solvents:

- Subpart Kb of the New Source Performance Standards, which establish emissions limits and engineering controls for storage of volatile organic liquids;
- The Hazardous Organic NESHAP Maximum Achievable Control Technology regulation ("HON MACT") which addresses control of emissions of organics, including organics in wastewater;
- The forthcoming Subpart YYY of the New Source Performance Standards, which will specifically regulate organic emissions from wastewaters.

In each of these regulations, EPA has done a considered analysis of what levels of emissions require controls. These air emission limitations represent EPA's more focused judgement on how to regulate volatile emissions from wastewaters and relying on them is consistent with RCRA's mandate that the Administrator integrate RCRA with other environmental laws. RCRA 1006(b). EPA should remain true to the original intent of the headworks exemption — to prevent wastewater and sludges from being unnecessarily included in the hazardous waste definition. The RCRA program should *not* duplicate protections and controls rightfully developed under the Clean Air Act, but instead rely on them in amending the headworks exemption.

#### B. Concerns About Environmental Impact

One commenter raised a generalized concern over potential impact of adding these four additional solvents to headworks exemption. The American Chemistry Council points out that three of the compounds are clearly amenable to biological treatment and that the only adverse consequence of adding them to the exemption is the potential impact of ignoring losses due to volatilization, which we have shown are or will be addressed through a variety of federal air and RCRA regulations. EPA should, of course, make an affirmative demonstration that, at the concentrations allowed by the headworks exemption, the compounds will be protectively managed.

#### C. Answers To EPA's Questions

*Headworks-1. Does CMA have data on the concentrations of chemicals and waste volumes for wastes containing these 4 additional chemicals [benzene, 2-ethoxyethanol, 2-nitropropane, and 1,1,2-trichloroethane] at the point of the headworks?*

We do not have detailed information on volumes or concentrations of the four constituents in untreated wastestreams, but we have reviewed their TRI reports and can provide the following information.

Our evaluation of the 1997 TRI data shows that:

- 119 facilities reported releases of benzene to water totaling 11,464 pounds;
- one facility reports 1 pound of 2-ethoxyethanol released to water;



- three facilities are listed for 2-nitropropane, but only one reported releases to water of 2789 pounds;
- 22 facilities are listed for 1,1,2-trichloroethane, but only 5 reported releases to water totaling 618 pounds.

We only evaluated the releases to water since those are the ones that would be affected by any change in the headworks exemption.

***Headworks-2. What are potential management scenarios for wastes containing these 4 additional chemicals?***

The American Chemistry Council is suggesting that, consistent with a previous exemption, EPA exempt these solvents from Subtitle C regulation contingent on their management in a wastewater treatment facility that is regulated under the Clean Water Act. If EPA includes them in the current headworks exemption, they would be managed in wastewater treatment systems. Benzene and 1,1,2-trichloroethane are OCPSF constituents, and have therefore been evaluated for biotreatability; 2-ethoxy-ethanol is amenable to biological treatment<sup>31</sup>.

***Headworks-3. Is multi-source leachate derived solely from the disposal of spent solvents currently segregated from other waste streams?***

As far as we know, such streams are generally not segregated, but rather managed as any other hazardous waste – in an on- or off-site hazardous waste management system. For facilities that currently send the leachate off-site for treatment, they would have a strong financial incentive to segregate it for management in an on-site non-hazardous wastewater treatment system.

At least one CMA member currently manages leachate derived solely from a landfill managing F001 – F003 waste. They ship the leachate off-site to be managed in a hazardous wastewater treatment system. If the headworks exemption were expanded to cover F001 – F005 leachate, the remaining hazardous waste streams could easily be diverted to other treatment, leaving the wastewater treatment system managing only non-hazardous wastes.

***Headworks-4. Are there sources of data regarding the constituents expected to be present in leachate derived solely from solvents?***

EPA chose not to consider other constituents present in the spent solvent in both the F001 – F005 original listing and its recent decision not to list additional spent solvents as hazardous. The Agency's decision was upheld in the challenge to the recent listing decision. *See Environmental Defense Fund v. EPA*, No. 99-1048 (D.C. Cir.) (decided May 5, 2000). We do note, however, that EPA has raised questions over whether it

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<sup>31</sup> From Handbook of Environmental Data on Organic Chemicals, 2nd Edition, Karel Verschueren, Van Nostrand Reinhold Company, NY, NY, 1983.

should revisit the LDR treatment standards applicable to F001 – F005 regarding metals and other underlying hazardous constituents.

We would point out that there are several elements currently in place to control such additional constituents. First, a wastewater treatment system would only accept a wastewater if would not compromise the systems ability to meet the terms of it's discharge permit – either it's own NPDES permit or the POTW's permit. Secondly, any sludge generated from the system would be evaluated against characteristics before disposal. The sludge might also be evaluated against the CWA sludge standards depending on its ultimate disposition.

## 5. DE MINIMIS EXEMPTION

The American Chemistry Council also proposed a modification to the mixture rule related to expanding the de minimis loss exemption to include "de minimis losses" from the handling of "F" or "K" listed wastes. These small losses would be exempt from RCRA if they were managed in wastewater treatment units. In support of this recommendation, the Council noted that such losses could be just as reasonably and efficiently managed in on-site wastewater collection systems as wastewaters containing de minimis losses of P or U list wastes.

### A. Response To Comments

Comments on this suggestion were generally favorable, with the greatest concern being the fear that such an exemption might be an incentive for generators to relax their current "housekeeping" practices and increase spills or leaks of listed wastes.

These concerns are not well founded since it is not good industry practice to spill small volumes of hazardous waste, only to then have to spend time and money to clean up a larger volume of contaminated material! The Agency must keep in mind that the Council's suggestion would only allow *de minimis* losses of F and K wastes to be managed in wastewater treatment systems, as the term *de minimis* is currently described in the regulations. This description has been in place for many years without apparent controversy, and our recommendation would do nothing to change it. This provision therefore will not provide an incentive for sloppy housekeeping. Spills or leaks in excess of *de minimis* quantities would still be costly and disruptive to manage, and could not be managed in non-hazardous waste facilities.

### B. Responses To EPA's Questions

*De Minimis-1. What specific examples can CMA provide on de minimis losses not covered by the current exemption? In these examples, can CMA identify the economic importance of alternative waste management under a revised exemption?*

In CMA's February 2000 comments we described several situations in which relief would be provided by expanding the exemption for *de minimis* losses to F and K wastes. The relief would come chiefly by removing the necessity of and expense of segregating *de minimis* quantities of F and K listed wastes. Facilities must currently do so to prevent contaminating their non-hazardous wastewater treatment systems, even when those systems could easily manage *de minimis* quantities of the listed waste.

Sites with these other listed wastes have wastewater systems that are already adequate to manage the incremental *de minimis* additions. This is so because either (1) the site wastewater treatment systems is already managing more than *de minimis* losses of similar chemicals produced at the site that are not listed or (2) the losses are *de minimis* (which they must be to qualify) and can be managed in the wastewater system because they are *de minimis*. In either situation, the wastewater treatment

systems ensure that there will be no adverse effect to human health or the environment."

*De Minimis-2. How might other regulatory provisions (e.g., the debris rule) afford some relief from the mixture and derived-from rules, and has such regulatory consideration been examined?*

The Council's suggestion is to exempt de minimis losses of F or K wastes that will be managed in a Clean Water Act regulated facility -- not debris sources that should be addressed under the debris rule. While the debris rule does provide a somewhat easier way to manage materials -- pallets, tarps, piping, etc. -- contaminated with de minimis quantities of listed wastes, it is not, for all practical purposes, particularly helpful for de minimis losses to wastewater treatment systems. We would also point out that the debris rule is coming under increased scrutiny through the recent LDR reinvention notice.

*De Minimis-3. Are there particular waste codes that should not be considered for such a revision to the de minimis exemption (e.g., dioxin bearing wastes)?*

Since the F and K de minimis losses would go to a facility's wastewater treatment system, the operating parameters of the system itself, as well as the discharge limits, would limit the constituents that could be accepted.

*De Minimis-4. The CMA paper related to the De Minimis Loss Exemption Modification states that the Agency "recognized that it should not regulate as hazardous waste wastewaters containing small losses from routine handling of discarded commercial chemical products and off-specification materials..." (underline added). In the preamble to the 1981 rule, the Agency specifically discusses that "the amendment does not exempt wastewater mixtures that derive from the discarding of off-specification 261.33 materials..." (46 FR 56586). Does CMA believe that off-specification materials are covered by the current de minimis exemption?*

No, we do not believe that off-specification materials are currently covered under the de minimis exemption; this was a misstatement by us. We were merely describing the P & U waste listings. However, we do believe that in light of the full panoply of disincentives for intentionally dripping or spilling off-specification materials, there is no longer the same need to draw the de minimis exemption so narrowly.

*De Minimis-5. Because EPA has created a subset of 261.33 waste (P and U waste) to be eligible for the de minimis exemption, it fashioned specific language regarding the waste's origin: "used as raw materials or are produced in the manufacturing process." Does CMA seek to extend this exemption to other 261.33 wastes as well as extend the exemption to all F and K wastes? Substituting "generated" for the above language would have that effect, and would contradict the arguments made in the 1981 rule.*

Yes. We recommend expanding the scope of the 1981 rule to all listed hazardous wastes. As we described in our February 2000 comments, waste management practices and reporting requirements are significantly different than they were in

1981. As a result, facilities do not have an economic incentive to spill even de minimis quantities of listed wastes since they could trigger significant remediation costs. Such was not the case in 1981. Twenty years ago the regulatory and economic rationale for limiting the scope of the de minimis exemption may have had merit. In light of current waste management practices – particularly the cost of remediation and potential future liability – removes any financial incentive for a facility to intentionally drip or spill hazardous wastes.

*De Minimis-6. More specifically, how does CMA believe the tank and container and air emission management standards of 40 CFR parts 264 and 265, Subparts I, J, BB and CC protect against the potential abuse of an expanded de minimis exemption?*

We do not believe that the presence in a wastewater treatment system of de minimis quantities of F or K wastes or off-specification P or U wastes should trigger the standards described in 40 CFR 264 and 265. Rather, greater than de minimis losses of such listed wastes should trigger the requirements since they would constitute the management of a RCRA hazardous waste. Facilities would not want to contaminate their non-hazardous wastewater treatment systems and thus trigger these RCRA requirements.

As we stated in our initial recommendation and reiterated in the February comments, we do not propose to expand the descriptive definition of what constitutes a de minimis loss. We merely recommend that, in light of the development of the hazardous waste regulatory structure since the original de minimis losses exemption was promulgated, the scope of the exemption can now be safely expanded to other listed wastes.

**Reference List**  
**F039 Chemicals Amenable to Biological Treatment**

- 1 Pitter, P. and Chudoba, J., 1990, "Biodegradability of Organic Substances in the Aquatic Environment," CRC Press, Boca Raton, Florida
- 2 Bishop, D.F., EPA Water Research Engineering Laboratory, Sept. 26, 1985, "Estimation of Removability and Impact of RCRA Toxics," memorandum to T. P. O'Farrell, Office of Water Regulations and Standards
- 3 Kinch, R. and Cunningham, M., 1990, "Final Best Available Technology (BDAT) Background Document for U and P Wastes and Multi-source Leachate (F039)," EPA/530-SW-90-060F
- 4 Tabak, H.H., et.al., 1981, "Biodegradability studies with organic priority pollutant compounds," Jour. WPCF, v.53, no.10, pp.1503-1518
- 5 Tabak, H.H. and Govind, R., 1992, "Development of Predictive Models for Structure-Biodegradation Relationship with Respirometrically Derived Biodegradation Kinetics," 85th Annual Meeting & Exhibition, AWMA, Kansas City, Missouri

TABLE 2

## F039 Chemicals Amenable to Biological Treatment

Chemical/element	CAS Number	Biodegradable	F039 BDAT - Biol. Treat.	Reference
Acenaphthene	83-32-9		x	1,3,4
Acenaphthylene	208-96-8		x	1,2,3,4
Acetone	67-64-1		x	1,2,3,5
Acetonitrile	75-05-8	x		1,2
Acetophenone	98-86-2		x	2,3,5
2-Acetylaminofluorene	53-96-3		x	3
Acrolein	107-02-8		x	2,3,4
Acrylonitrile	107-13-1		x	1,3,4
Aldrin	309-00-2		x	2,3,4
4-Aminobiphenyl	92-67-1		x	3
Aniline	62-53-3	x		1,2,5
Anthracene	120-12-7		x	1,2,3,4
Aramite	140-57-8		x	3
Aroclor-1016			x	2,3,4
Aroclor-1221			x	2,3,4
Aroclor-1232			x	2,3,4
Aroclor-1242			x	2,3,4
Aroclor-1248			x	2,3,4
Aroclor-1254			x	2,3,4
Aroclor-1260			x	2,3,4
alpha-BHC	319-84-6	x		4
beta-BHC	319-85-7	x		4
delta-BHC	319-86-8		x	3,4
gamma-BHC	58-89-9	x		4
Benz(a)anthracene	6-55-3		x	1,3
Benzene	71-43-2	x		1,2,4,5
Benzo(b)fluoranthene	205-99-2		x	1,3
Benzo(k)fluoranthene	207-08-9		x	1,3
Benzo(g,h,i)perylene	191-24-2		x	1,3
Benzo(a)pyrene	50-32-8		x	1,3
Bis(2-chloroethyl) ether	111-44-4		x	1,2,3,4
Bis(2-chloroisopropyl) ether	39638-32-9		x	3,4
Bis(2-ethylhexyl)phthalate	117-81-7		x	1,2,3,4
Bis(chloroethoxy)methane	111-91-1		x	3
Bromomethane	74-83-9		x	2,3,4
4-Bromophenyl ether	101-55-3		x	3
Butanol	71-36-3		x	1,2,3,5
Butyl benzyl phthalate	85-68-7		x	2,3
Carbon disulfide	75-15-0		x	2,3
Chlordane	57-74-9		x	2,3,4
Chlorobenzene	108-90-7		x	1,2,3,4,5
2-Chloro-1,3-butadiene	126-99-8		x	3

# F039 Chemicals Amenable to Biological Treatment

Chemical/element	CAS Number	Biodegradable F039 BDAT - Biol. Treat.	Reference
p-Chloro-m-cresol	59-50-7	x	1,2,3,4
2-Chloronaphthalene	91-8-7	x	2,3
2-Chlorophenol	95-57-8	x	1,2,3,4
3-Chloropropene	107-05-1	x	3
Chrysene	218-01-9	x	1,3,4
o-Cresol	95-48-7	x	1,2,3,5
Cresols	1319-77-3	x	1,2,3,5
Cyclohexanone	108-94-1	x	1,2,3
Cumene	98-82-8	x	5
Cyanide (amenable)	57-12-5	x	2
DDD	72-54-8	x	2,3,4
DDE	72-55-9	x	2,3,4
DDT	50-29-3	x	2,3,4
Dibenz(a,h)anthracene	53-70-3	x	3
Dibenzo(a,e)pyrene	192-65-4	x	3
1,2-Dibromo-3-chloropropane	96-12-8	x	1,2,3
Dibromomethane	74-95-3	x	2
2,4-Dichlorophenoxy acetic acid	94-75-7	x	1,2,3
1,2-Dichlorobenzene	95-50-1	x	1,2,3
1,3-Dichlorobenzene	541-73-1	x	1,2,3
1,4-Dichlorobenzene	106-46-7	x	1,2,3
2,4-Dichlorophenol	120-83-2	x	1,2,3,4
2,6-Dichlorophenol	87-65-0	x	1,3
1,2-Dichloropropane	78-87-5	x	1,3,4
cis-1,3-Dichloropropene	10061-01-5	x	1,2,3
trans-1,3-Dichloropropene	10061-02-6	x	1,2,3
Dieldrin	60-57-1	x	2,3
Diethyl phthalate	64-66-2	x	1,2,3,4,5
2,4-Dimethylphenol	105-67-9	x	1,2,3,4,5
Dimethyl phthalate	131-11-3	x	1,2,3,4,5
2,4-Dinitrophenol	51-28-5	x	1,2,4,5
Di-n-butyl phthalate	84-74-2	x	1,2,3,4,5
Di-n-octyl phthalate	117-84-0	x	1,2,3,4
Diphenylamine	122-39-4	x	3
1,2-Diphenylhydrazine	122-66-7	x	3
Diphenyl nitrosamine	621-64-7	x	3,4
Disulfoton	298-04-4	x	2,3
Endosulfan I	939-98-8	x	3
Endosulfan II	33213-6-5	x	3
Endosulfan sulfate	1031-07-8	x	3
Endrin	72-20-8	x	3
Endrin aldehyde	7421-93-4	x	3



# F039 Chemicals Amenable to Biological Treatment

Chemical/element	CAS Number	Biodegradable F039 BDAT = Biol. Treat.	Reference
Ethyl acetate	141-78-6	x	1,2,3,5
Ethyl cyanide	107-12-0	x	3
Ethylbenzene	100-41-4	x	1,2,3,4,5
Ethyl ether	60-29-7	x	1
Ethyl methacrylate	97-63-2	x	3
Famphur	52-85-7	x	3
Fluoranthene	206-44-0	x	1,3,4
Fluorene	86-73-7	x	1,3,4
Heptachlor	76-44-8	x	3,4
Heptachlor epoxide	1024-57-3	x	3,4
Hexachlorobenzene	118-74-1	x	1,3,4
Hexachloro-1,3-butadiene	87-68-3	x	1,3,4
Hexachlorocyclopentadiene	77-47-4	x	2,3,4
Hexachloroethane	67-72-1	x	2,3,4
Hexachloropropene	1888-71-7	x	3
Indeno(1,2,3-cd)pyrene	193-39-5	x	3
Isobutyl alcohol	78-83-1	x	1,2,3
Isodrin	465-73-6	x	3
Kepone	143-50-0	x	3
Methacrylonitrile	126-96-7	x	3
Methanol	67-56-1	x	1,2,3,5
Methylene chloride	75-09-0	x	1,2,4
Methyl ethyl ketone	78-93-3	x	1,2,3,5
Methyl isobutyl ketone	108-10-1	x	1,2,3
Methyl methacrylate	80-62-6	x	3
Methyl methansulfonate	66-27-3	x	3
Methyl parathion	298-00-0	x	3
Naphthalene	91-20-3	x	1,2,3,4
2-Naphthylamine	91-59-8	x	3
p-Nitroaniline	100-01-6	x	2
Nitrobenzene	98-95-3	x	1,2,4
4-Nitrophenol	100-02-7	x	1,4,5
N-Nitroso-di-n-butylamine	924-16-3	x	3
N-Nitrosodiethylamine	55-18-5	x	3
N-Nitrosodimethylamine	62-75-9	x	3
N-Nitrosomorpholine	59-89-2	x	3
N-Nitrosomethylethylamine	10595-95-6	x	3
N-Nitrosopiperidine	100-75-4	x	3
N-Nitrosopyrrolidine	930-55-2	x	3
Parathion	56-38-2	x	3
Pentachlorodibenzofurans		x	3
Pentachlorobenzene	608-93-5	x	3

### F039 Chemicals Amenable to Biological Treatment

Chemical/element	CAS Number	Biodegradable	F039 BDAT - Biol. Treat.	Reference
Pentachloronitrobenzene	82-68-8		x	3
Pentachlorophenol	87-86-5	x		1,2,4
Phenanthrene	85-01-8	x		1,3,4
Phenol	108-95-2		x	1,2,3,4,5
Phorate	298-02-2		x	2,3
Phthalic anhydride	85-44-9		x	1,2,3
Pyrene	129-00-0		x	1,3,4
Pyridine	110-86-1		x	1,2,3
Tetrachlorodibenzofurans			x	3
Tetrachlorodibenzo-p-dioxins			x	3
1,2,4,5-Tetrachlorobenzene	95-94-3		x	3
Tetrachloroethylene	127-18-4		x	1,2,3,4
2,3,4,6-Tetrachlorophenol	935-95-5		x	3
Toluene	108-88-3	x		1,2,3,4,5
Toxaphene	8001-35-2		x	3
1,2,4-Trichlorobenzene	120-82-1		x	1,3,4
2,4,5-Trichlorophenol	95-95-4		x	3
2,4,6-Trichlorophenol	88-06-2		x	3
2,4,5-Trichlorophenoxyacetic acid	93-76-5	x		1
1,2,3-Trichloropropane	96-18-4		x	3
Tris(2,3-dibromopropyl)phosphate	126-72-7		x	3
Xylenes	1330-20-7	x		2,3,5